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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS J. RIBARICH

Appeal 2009-004297[1]
Application 10/678,004
Technology Center 2800

Decided: December 30, 2009

Before JOHN C. MARTIN, MAHSHID D. SAADAT, and
CARL W. WHITEHEAD, JR., *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] The real party in interest is International Rectifier Corporation.

STATEMENT OF THE CASE

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 2, 4, 6-16, and 38-42, which are all of the pending claims.

We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

A. Appellant's invention[2]

Appellant's invention is a compact fluorescent lamp package (CFLP) having better thermal characteristics than conventional CFLPs and having the appearance and dimensions of a conventional incandescent light bulb. Specification ¶¶ 0008, 0009.

Appellant's Figure 3 is reproduced below.

[2] References herein to Appellant's Specification are to the Application as filed rather than to corresponding Patent Application Publication 2004/0109317 A1.

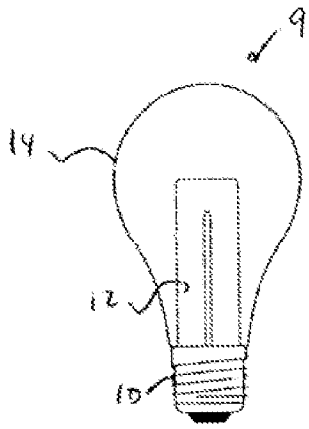

Figure 3

Figure 3 shows a schematic of Appellant's compact fluorescent lamp package. *Id.* ¶ 0027. The compact fluorescent lamp package 9 includes a base 10, a fluorescent lamp 12, and preferably a diffuser cover 14. *Id.* ¶ 0036.

Figure 4 is reproduced below.

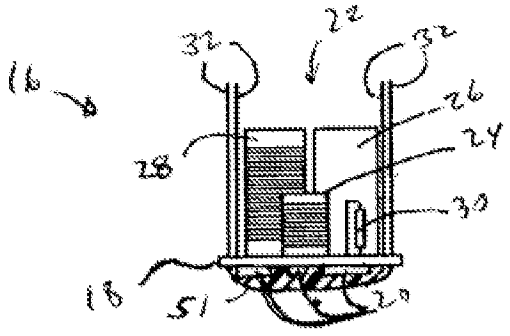

Figure 4

Figure 4 schematically shows the physical external appearance of a multi-chip module used in Appellant's compact fluorescent lamp package.

Id. ¶ 0028. The multi-chip module (MCM) 16 includes a complete ballast circuit for operating fluorescent lamp 12 and is disposed entirely in the interior space of base 10. *Id.* ¶ 0040. In one embodiment, MCM 16 includes a circuit board 18 having design-independent electronic components 20 disposed on one major surface thereof and design-dependent electronic components 22 disposed on the second major surface thereof. *Id.* ¶ 0041.

Figure 5 is reproduced below.

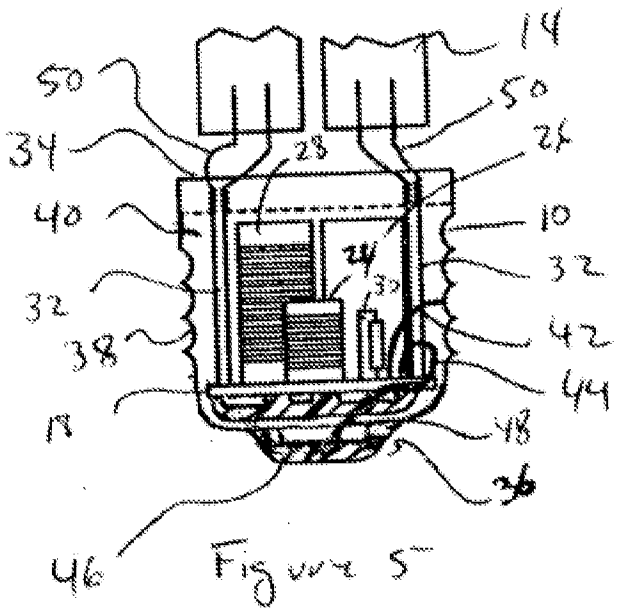

Figure 5

Figure 5 shows the multi-chip module of Figure 4 installed in base 10 of Appellant's CFLP, which base resembles the base used in a conventional incandescent light bulb. *Id.* ¶ 0029. Base 10 includes an open end 34, a closed end 36, and a wall 38 surrounding closed end 36. *Id.* ¶ 0047. Wall 38, which functions as a neutral connector, surrounds a space within which MCM 16 is entirely disposed, the space that is enclosed by wall 38 being

filled with thermal epoxy 40. *Id.* This thermal epoxy provides mechanical stability for MCM 16 within base 10 and allows heat generated by the electronic devices included with MCM 16 to be transferred more efficiently to wall 38 so that the heat may be dissipated. *Id.*

B. The claims

The independent claims before us are claims 1 and 38, of which claim 1 reads as follows:

> 1. A compact fluorescent lamp package comprising:
>
> a screw base for electrically connecting said lamp package to an electrical socket which is capable of receiving a screw base of an ordinary incandescent lamp, said screw base including an open end and a closed end and a wall surrounding said closed end to provide an enclosure around a space;
>
> a multi-chip module including a complete ballast circuit formed on a circuit board contained inside said screw base and electrically connected to said screw base to receive power through said screw base, said circuit board including opposing surfaces, one surface facing said opening and the other surface facing said closed end;
>
> a thermally conductive body disposed around said ballast circuit and supporting said multi-clip [sic: chip] module within said screw base, and thermally connecting said wall of said screw base to said ballast circuit directly, whereby said screw base may dissipate heat generated by said ballast circuit; and
>
> a fluorescent lamp extending away from said screw base and operatively connected to said ballast circuit; wherein said multi-chip module is formed on a single circuit board.

Claims App. (Br. 10).

C. The references

The Examiner relies on the following references:[3]

Mies et al. ("Mies")	WO 96/13048	May 2, 1996
Muessli	US 6,548,948 B1	Apr. 15, 2003

D. The rejection

Claims 1, 2, 4, 6-16, and 38-42 stand rejected under 35 U.S.C. § 103(a) for obviousness over Muessli in view of Mies.

THE ISSUES

Appellant has the burden on appeal to show reversible error by the Examiner in maintaining the rejection. *See In re Kahn*, 441 F.3d 977, 985-86 (Fed. Cir. 2006) ("On appeal to the Board, an applicant can overcome a rejection by showing insufficient evidence of *prima facie* obviousness or by rebutting the *prima facie* case with evidence of secondary indicia of nonobviousness." (citation omitted)).

The issues regarding the rejection of claim 1 are whether Appellant has shown that the Examiner erred in concluding: (1) that Muessli's printed circuit board 41 has two opposing surfaces facing the open and closed ends, respectively, of the screw base; (2) that Muessli's printed circuit boards 41

[3] Because the availability of these references as prior art against Appellant's claims is not at issue, only the issue date or publication date of each reference is provided.

and 42 collectively constitute the recited "single circuit board"; and (3) that Mies's heat-conducting body D *supports* heat-conducting plate P of ballast B within lamp cap 3 (i.e., the recited "screw base").

ANALYSIS

Muessli discloses an energy-saving lamp employing an electronic ballast disposed on a printed circuit board within a standard lamp base. Muessli, col. 1, ll. 57-60; col. 2, ll. 9-12.

Figure 3 is reproduced below.

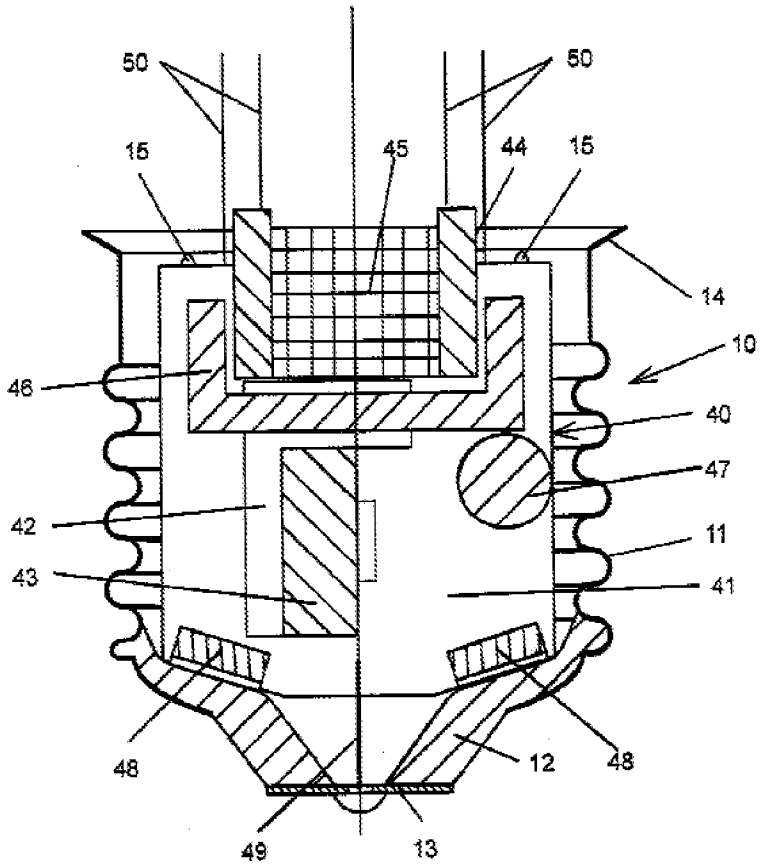

Fig. 3

Figure 3 is a longitudinal section of the lamp base, including ballast components, of Muessli's lamp. *Id.* at col. 3, ll. 44-46.

The supporting element of the electronic ballast 40 is a printed board 41, which stands upright in the base 10, is provided on both sides with conductors, and supports all electric and electronic components. *Id.* at col. 4, ll. 39-42. The annular core 43 of the oscillating circuit transformer is located at the center of printed board 41, which a cutout therein so that the annular core 43 projects with approximately one half past the front side and one half past the backside of printed board 41. *Id.* at col. 4, l. 66 to col. 5, l. 3. Annular core 43 is secured by an additional board 42, which is pushed through the annular core. *Id.* at col. 5, ll. 3-5.

The three coils of the oscillating circuit transformer are realized as printed coils (not illustrated), with one half of the coils arranged on printed board 41 and the other half arranged on an additional board 42. *Id.* at col. 5, ll. 6-9. Additional board 42 is placed upside-down onto the printed board 41 so that the corresponding partial coils can be soldered to one another. *Id.* at col. 5, ll. 9-12. The magnetic core 47 of a mains suppressing reactor is also mounted on printed board 41. *Id.* at col. 5, ll. 17-19.

The Examiner finds that Muessli discloses all of the subject matter recited in claim 1 except for "a thermally conductive body disposed within the base; and the thermally conductive base [sic: body] thermally connecting the base to said ballast circuit." Final Action 3. The Examiner relies on Mies to cure these deficiencies.

Mies discloses an electric lamp which is comparatively easy to manufacture, has comparatively small lamp dimensions, and whose ballast means are effectively cooled during lamp operation. Mies 1:10-12.

Mies's Figure 1 is reproduced below.

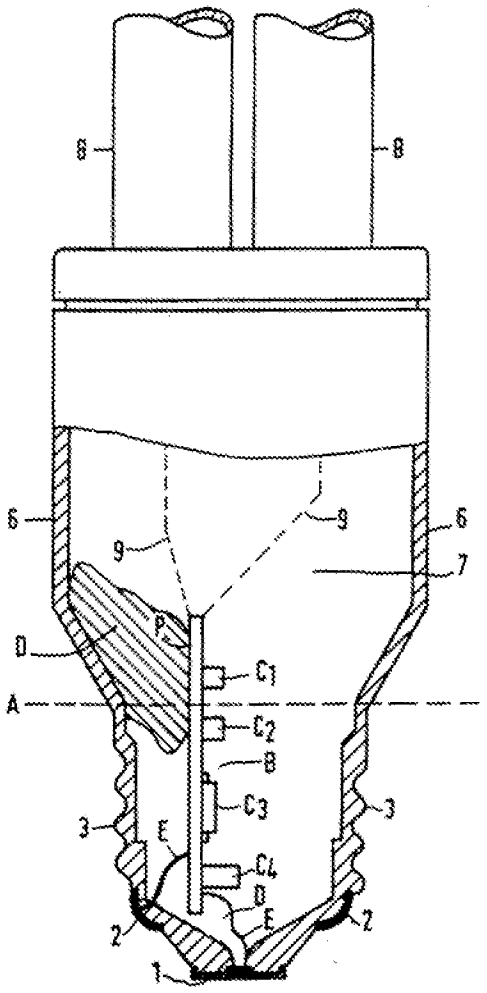

FIG. 1

Figure 1 (the sole figure) shows an embodiment of part of Mies's electric lamp in side section and partly in cross section. *Id.* at 3:19-20.

Housing 6, which can be formed of a synthetic resin, has a lamp cap portion 3 below broken line A. *Id.* at 3:23-25. Ballast means B, which are located in a space 7 that is surrounded by housing 6, include a heat-conducting plate P that is "fastened in the space 7 by means not shown in Fig. 1" and further comprise components C1-C4 mounted on the heat-conducting plate. *Id.* at 3:27-31. Reference character D identifies a quantity of heat-conducting paste that forms a heat-conducting body in contact with both the housing 6 and heat-conducting plate P. *Id.* at 3:31-33. Consequently, during operation of the lamp, the housing 6 serves as a heat sink to effectively cool the ballast means. *Id.* at 4:10-13.

In rejecting claim 1, the Examiner concludes that

> [i]t would . . . have been obvious to one of ordinary skill in the art at the time of the invention to modify the compact Fluorescent lamp package of Muessli ('948 B1) by filling thermal epoxy compound as taught by Mies for [the] benefit and advantage of efficiently dissipating heat to the outer casing, and providing mechanical stability to the circuit board, and improving efficiency and operational life of the device.

Final Action 4.

Appellant responds to the above rationale with three arguments. First, Appellant argues that "Muessli and Mies both disclose a device in which the circuit board is vertically oriented such that its component receiving surfaces face the wall of the screw base" (Br. 7) and provides a description of the

alleged advantages achieved with the claimed orientation. (*Id.*) The Examiner responds as follows:

> Neither claim 1 nor claim 38 include a limitation requiring a specific orientation of the circuit board. Each of claims 1 and 38 includes "a circuit board including opposing surfaces, one surface facing said opening and the second surface facing said closed end".
>
> As discussed above, Muessli ('948 B1) in view of Miles [sic: Mies] discloses a compact florescent lamp package comprising the circuit board 41 including opposing surfaces; one surface with elements 15 is facing the opening and the other surface with the elements 48 is facing the closed end 13 (Muessli, Figure 3).

(Answer 8.) The Reply Brief fails to discuss, let alone point out any alleged error in, this reasoning of the Examiner. In any case, the language of claim 1 does not preclude the recited "opposing surfaces" from being read on the upper and lower (as depicted in Figure 3) end surfaces of printed circuit board 41, which respectively face the open and closed ends of the screw base.

Appellant's second argument (Br. 7) against the rejection of claim 1 is that the Examiner erred in finding that Muessli's ballast circuitry, which corresponds to the recited "complete ballast circuit," is formed on a "single circuit board," as required by claim 1. As support for this finding, the Examiner explains that "Muessli ('948 B1) clearly teaches the second circuit board 42 being integral to the main circuit board after the multi chip ballast is mounted on the circuit board 41 (Figure 3, column 5, lines 9-12)." Final Action 7. The Examiner adheres to this position in the Answer, further

finding that "[t]he phrase [sic] 'integral' has been broadly interpreted [as] an assembly held together with attachment means such as mechanical fasteners, solder joints, weld joints, chemical bonding or adhesive joints." (Answer 9.) We agree with Appellant (Reply Br. 2) that the effect of the Examiner's position is to essentially eliminate the term "single" from the claim. Assuming for the sake of argument that Muessli's printed boards 40 and 42 can accurately be described as forming an "integral" printed-circuit-board structure, they nevertheless still constitute two boards rather than the single board required by the claim.

We also find ourselves in agreement with Appellant's third argument against the rejection of claim 1, which is that Mies's "heat-conducting body D" is not disclosed as *supporting* the heat-conducting plate P in position within the screw base, as is necessary to satisfy claim 1's recitation of "a thermally conductive body disposed around said ballast circuit and supporting said multi-chip module within said screw base." To the contrary, as noted above and by Appellant, Mies explains that heat-conducting plate P is "fastened in the space 7 by means not shown in Fig. 1" (Mies 3:29). Furthermore, inasmuch as Mies's "heat-conducting body" is described as a "heat-conducting paste," we agree with Appellant (Br. 8) that it also appears to be incapable of providing the claimed support. We note that the Examiner's discussion (Answer 10) of this third argument fails to address Appellant's reliance on the term "supporting" in claim 1's recitation of "a thermally conductive body . . . *supporting* said multi-c[h]ip module within said screw base" (emphasis added).

Because Appellant has shown that the Examiner erred in rejecting claim 1 for obviousness over Muessli in view of Mies, we are reversing the rejection of claim 1 and its dependent claims 2, 4, and 6-16.

Independent claim 38 resembles claim 1 in reciting "a thermally conductive body disposed within and *supporting* said circuit board inside said screw base" and specifying that "said multi-chip module is formed on a *single* circuit board." Claims App. (Br. 12-13 (emphases added).) For the reasons given in the discussion of claim 1, we are accordingly also reversing the rejection of claim 38 and its dependent claims 39-42.

DECISION

The rejection of claims 1, 2, 4, 6-16, and 38-42 under 35 U.S.C. § 103(a) for obviousness over Muessli in view of Mies is reversed.

REVERSED

babc

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